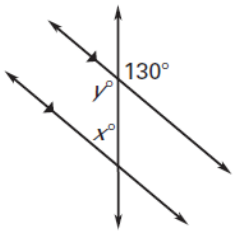
Section 3.2 – Angles Formed by a Transversal with Parallel Lines. Name:_____

For each diagram below find the value of each variable. You must state all postulates and theorems used. Your options are listed below. **REMEMBER: THE LAST 4 CAN ONLY BE USED WITH PARALLEL LINES!!!!**

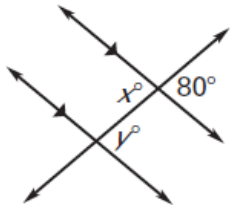
Vertical Angles Congruence Theorem
Alternate Interior Angles Theorem
Consecutive Interior Angles Theorem
Linear Pair Postulate
Alternate Exterior Angles Theorem
Corresponding Angles Postulate

Postulate/Theorem Used

1) 

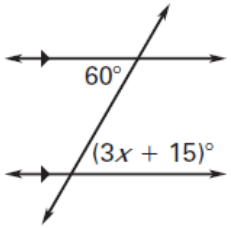
x = _____ _____

y = _____ _____

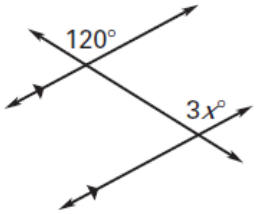
2) 

x = _____ _____

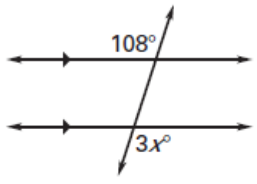
y = _____ _____

3) 

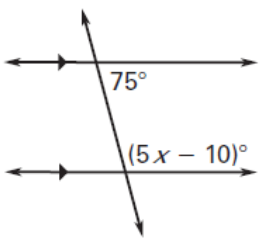
x = _____ _____

4) 

x = _____ _____

5) 

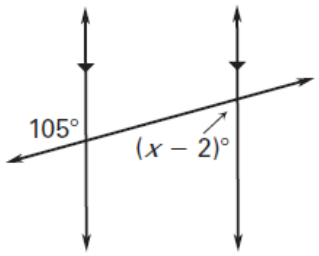
x = _____ _____

6) 

x = _____ _____

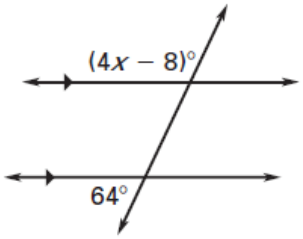
For the diagrams on this page – you may need to use TWO postulates/theorems to help you. Meaning – you may need to find another angle in-between to help you set up an equation and solve for x. When two postulates/theorems are used…you will see two lines in that column ☺

Postulate/Theorem Used

7) 

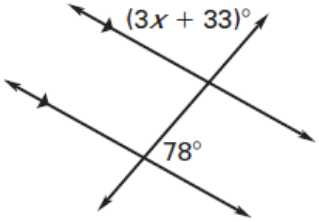
x = _____ _____

_____

8) 

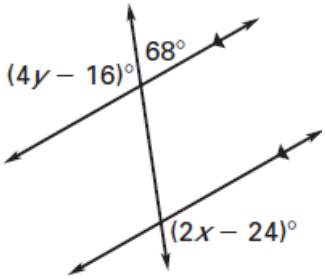
x = _____ _____

_____

9) 

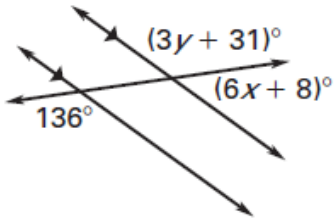
x = _____ _____

_____

10) 

x = _____ _____

y = _____ _____

11) 

x = _____ _____

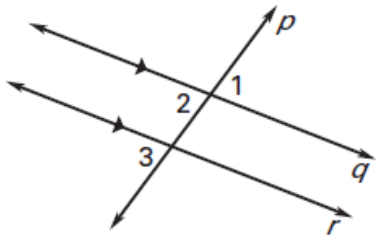
y = _____ _____

If you get stuck on 10 and 11 – try solving for y first…and using that knowledge to help you find x ☺

Use what you did in the above problems to help you complete the two-column proofs.

12) **GIVEN:** $q \parallel r$

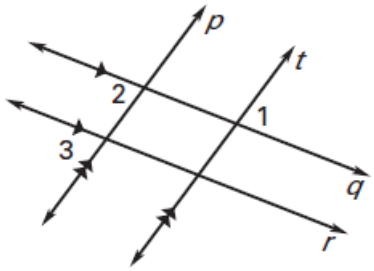
PROVE: $\angle 1 \cong \angle 3$



Statements	Reasons
1. $q \parallel r$	1.
2. $\angle 1 \cong \angle 2$	2.
3. $\angle 2 \cong \angle 3$	3.
4. $\angle 1 \cong \angle 3$	4.

13) **GIVEN:** $q \parallel r, p \parallel t$

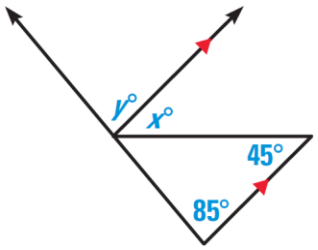
PROVE: $\angle 1 \cong \angle 3$



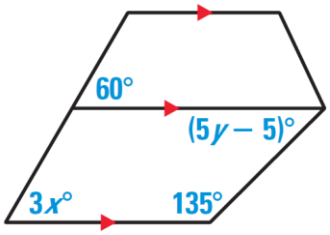
Statements	Reasons
1. $p \parallel t$, $q \parallel r$	1.
2. $\angle 1 \cong \angle 2$	2.
3. $\angle 2 \cong \angle 3$	3.
4. $\angle 1 \cong \angle 3$	4.

Find the values of x and y.

14)



15)



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